REMARKS

Claims 1-32 and 34 are currently pending in this application. Claims 1, 9, 21, 25, 32 and 34 have been amended in this response. Claim 33 has been cancelled in this response without prejudice to pursuing this claim in a divisional, continuation, continuation-in-part, or other application.

In the Office Action mailed January 24, 2006, claims 9-17 and 19-24 were rejected. More specifically, the status of the claims in light of this Office Action is as follows:

(A) Claims 9 and 12-15 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,657,309 to Hikita et al. ("Hikita");

(B) Claims 9, 10, 13, 16, 17 and 20-24 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,525,413 to Cloud et al. ("Cloud");

(C) Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cloud in view of U.S. Patent No. 6,114,221 to Tonti et al. ("Tonti"); and

(D) Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cloud in view of U.S. Patent No. 6,362,529 to Sumikawa et al. ("Sumikawa").

A. Response to the Section 102(e) Rejection over Hikita

Claims 9 and 12-15 were rejected under 35 U.S.C. § 102(e) as being anticipated by Hikita. As set forth below, Hikita fails to disclose or suggest all the features of these claims.

1. Claim 9 is Directed to a Microfeature Workpiece Including a Plurality of First Conductive Mating Structures Projecting Away from a Plurality of First Dies and Having Openings Configured to Receive and Interconnect with Corresponding Complementary Second Conductive Mating Structures on Second Dies

Claim 9 is directed to a microfeature workpiece including a plurality of first dies and a plurality of first conductive mating structures on the first dies. The individual first

dies have a first integrated circuit and a plurality of first pads electrically coupled to the first integrated circuit. The first conductive mating structures are positioned at least proximate to the first pads and project away from the first dies. The first conductive mating structures have openings configured to receive and interconnect with corresponding complementary second conductive mating structures on second dies.

2. Hikita Discloses a Semiconductor Device Including a Primary Chip Having an Opening Within the Chip and a Secondary Chip Having a Bump

Hikita discloses a semiconductor device including a primary chip 80 attached to a secondary chip 90. The primary chip 80 includes a recess or opening 83 in the chip 80 and a metal coating film 85 disposed within the opening 83. The secondary chip 90 includes a bump 95 projecting from the surface of the chip 90. The distal end of the bump 95 is placed within the opening 83 in the primary chip 80 so that the bump 95 is bonded to the metal coating film 85 in a "projection-depression engagement." (Hikita, 8:35-36.)

3. Hikita Fails to Disclose or Suggest a Microfeature Workpiece Including a Plurality of First Conductive Mating Structures Projecting Away From a Plurality of First Dies and Having Openings Configured to Receive and Interconnect With Corresponding Complementary Second Conductive Mating Structures on Second Dies

Hikita fails to disclose or suggest a microfeature workpiece including, *inter alia*, a plurality of "first conductive mating structures projecting away from the first dies and having openings configured to receive and interconnect with corresponding complementary second conductive mating structures," as recited in claim 9. For example, Hikita's metal coating film 85 is formed within the recess or opening 83 in the primary chip 80. Therefore, Hikita's metal coating film 85 cannot correspond to the first conductive mating structure of claim 9 because the metal coating film 85 does not project away from the primary chip 80. Moreover, Hikita's bump 95 cannot correspond to the first conductive mating structure of claim 9 because the bump 95 does not have an opening. Therefore, Hikita does not disclose a plurality of first conductive mating structures projecting away from dies and having openings.

Moreover, one skilled in the art would not be motivated to modify Hikita's primary chip 80 to include the features of claim 9 because such a modification would likely render the chip 80 inoperable. Specifically, if the surface protective film 82 on Hikita's primary chip were extended across the opening 85 and the metal coating film 85 were formed on the protective film 82 to project from the primary chip 80, then the primary chip would not be electrically connected to the secondary chip and Hikita's semiconductor device would be inoperable. Accordingly, one skilled in the art would not be motivated to modify Hikita's device to include the features of claim 9. Therefore, the Section 102(e) rejection of claim 9 should be withdrawn because (a) Hikita fails to disclose all the features of claim 9, and (b) one skilled in the art would not be motivated to modify Hikita's device to include the features of claim 9.

Claims 12-15 depend from claim 9. Accordingly, the Section 102(e) rejection of claims 12-15 should be withdrawn for at least the reasons described above with reference to claim 9 and for the additional features of these claims.

B. Response to the Section 102(e) Rejection over Cloud

Claims 9, 10, 13, 16, 17 and 20-24 were rejected under 35 U.S.C. § 102(e) as being anticipated by Cloud. As set forth below, Cloud fails to disclose or suggest all the features of these claims.

1. Cloud Discloses a First Die Having a Plurality of Apertures Exposing Corresponding Bond Pads

The discussion of Cloud herein addresses the embodiment illustrated and discussed with reference to Figure 3 of Cloud, and is in no way a characterization or interpretation of the claims in Cloud. Moreover, the claims in Cloud are expressly not limited to the embodiments disclosed in the specification of Cloud. Therefore, the claims in Cloud are to be interpreted without reference to this paper.

Cloud discloses, among other things, a package including a first die 10 and a second die 20. The first die 10 includes an active surface 12, a plurality of recesses in the active surface 12, and a plurality of bond pads 14 exposed by corresponding recesses. The second die 20 includes an active surface 22, a plurality of bond pads 24,

and a plurality of conductive structures 28 on corresponding bond pads 24 and projecting from the active surface 22. The second die 20 is attached to the first die 10 by placing the conductive structures 28 in corresponding recesses in the first die 10.

2. Cloud Fails to Disclose or Suggest a Plurality of First Conductive Mating Structures Projecting Away from the First Dies and Having Openings

Cloud fails to disclose or suggest a microfeature workpiece including, *inter alia*, a plurality of "first conductive mating structures projecting away from the first dies and having openings configured to receive and interconnect with corresponding complementary second conductive mating structures on second dies," as recited in claim 9. For example, the applicants submit that Cloud's conductive structures 28 on the second die 20 do not correspond to the first conductive mating structures of claim 9 because Cloud's conductive structures 28 do not have openings. Therefore, Cloud's package fails to include first conductive mating structures projecting away from the dies and having openings as required by claim 9. Moreover, the applicants submit that there is no motivation to modify Cloud's package and form openings in the conductive structures 28 because such openings may impair the electrical connection between the first and second dies 10 and 20. Accordingly, the Section 102(e) rejection of claim 9 over Cloud should be withdrawn because (a) Cloud fails to disclose all the features of claim 9, and (b) one of ordinary skill in the art would not be motivated to modify Cloud's package to include the features of claim 9.

Claims 10, 13, 16, 17 and 20 depend from claim 9. Accordingly, the Section 102(e) rejection of claims 10, 13, 16, 17 and 20 should be withdrawn for at least the reasons discussed above with reference to claim 9 and for the additional features of these claims.

Independent claim 21 has, *inter alia*, features generally analogous to the features of claim 9. Accordingly, the Section 102(e) rejection of claim 21 should be withdrawn for at least the reasons discussed above with reference to claim 9 and for the additional features of this claim.

Claims 22-24 depend from claim 21. Accordingly, the Section 102(e) rejection of claims 22-24 should be withdrawn for at least the reasons discussed above with reference to claim 21 and for the additional features of these claims.

C. Response to the Section 103(a) Rejection of Claim 11

Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cloud in view of Tonti. Claim 11 depends from claim 9. Accordingly, claim 11 is patentable over Cloud for at least the reasons discussed above with reference to claim 9 and for the additional features of this dependent claim. Moreover, Tonti fails to provide a motivation to modify Cloud's package and form openings in the conductive structures. Accordingly, the Section 103(a) rejection of claim 11 should be withdrawn.

D. Response to the Section 103(a) Rejection of Claim 19

Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cloud in view of Sumikawa. Claim 19 depends from claim 9. Accordingly, claim 9 is patentable over Cloud for at least the reasons discussed above with reference to claim 9 and for the additional features of this dependent claim. Moreover, Sumikawa fails to provide a motivation to modify Cloud's package and form openings in the conductive structures. Accordingly, the Section 103(a) rejection of claim 19 should be withdrawn.

E. Conclusion

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and are patentable over the applied art. The applicants accordingly request reconsideration of

the application and a Notice of Allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to contact David Dutcher at (206) 359-6465.

Respectfully submitted,
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Date: 4/26/06

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